



## **Tightening automation.**

Only excellent solutions.



**Multispindle tightening units**

**Fiam**®

PEOPLE AND SOLUTIONS

# Fiam multispindle tightening units: to ti

Tightening simultaneously and accurately more screws, bolts, nuts has never been easier. **Completely designed and manufactured by Fiam**, multispindle tightening solutions can foresee:

## TWO OR MORE SPINDLES

to tighten two or more screws, bolts, nuts **simultaneously and accurately** (at the same torque and depth)

## USE OF DIFFERENT TYPES OF INDUSTRIAL MOTORS

to choose, depending on the application and type of joint and screw, between solutions **with air motors without clutch** or with **air shut-off motors** up to high technology solutions with **DC nutrunner motors**

## AXIAL COMPENSATION

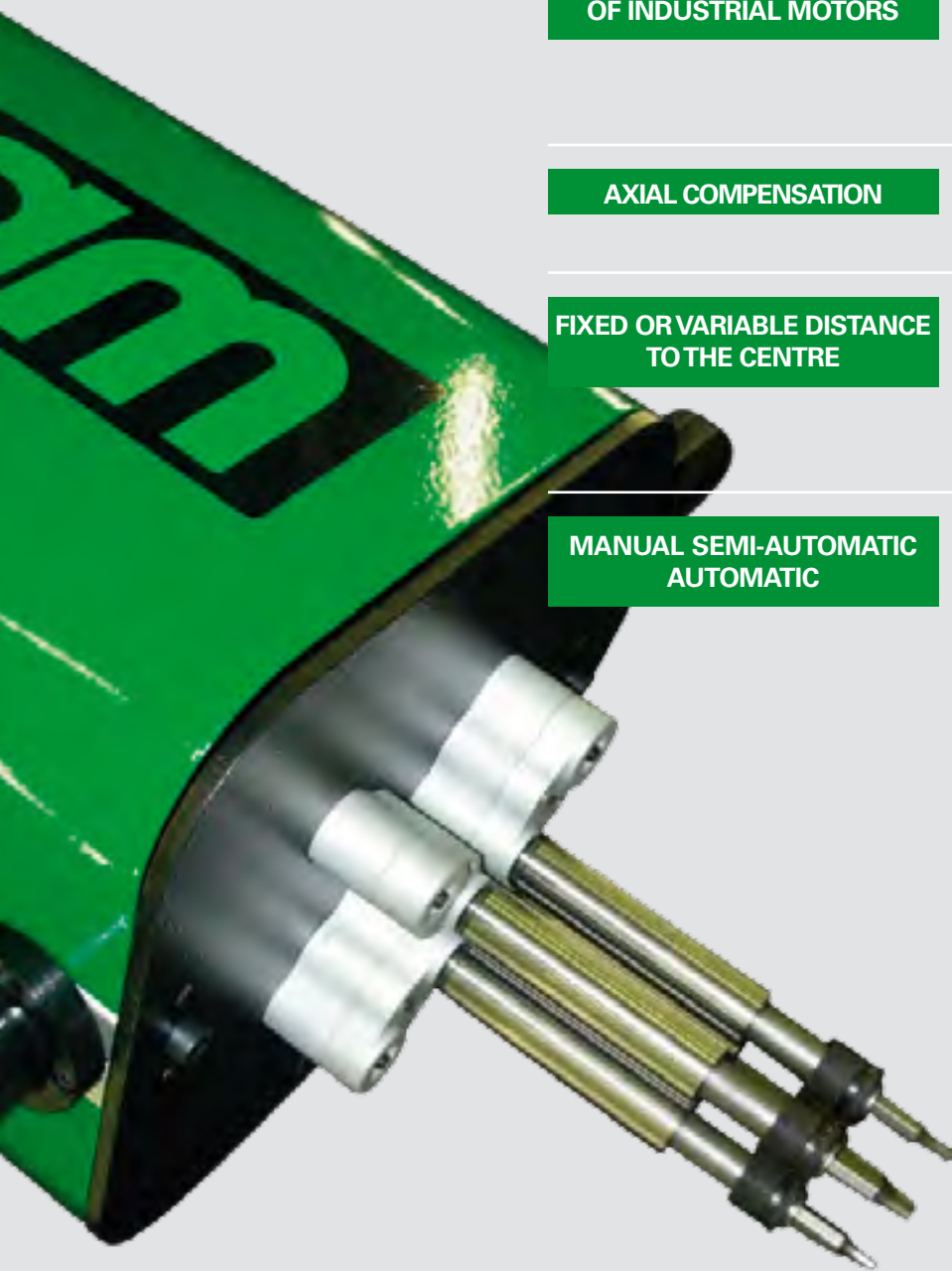
to eliminate height difference of the screws on the component (during tightening)

## FIXED OR VARIABLE DISTANCE TO THE CENTRE

to tighten different components with a **single multispindle unit, changing only the position of the spindles** depending on the different distance to centre (distance of the screws on the component)

## MANUAL SEMI-AUTOMATIC AUTOMATIC

in addition to the solutions that can be used by the operator vertically or horizontally, the multispindle tightening units can be integrated into in line automatic machines or on automatic workstations with manual loading of the piece



*Multispindle unit with variable distance to centre equipped with optical device for distance to centre measurement*

# ghten with maximum productivity

## BALANCING SYSTEM

with hanging ring for balancer use to compensate the weight of the multispindle tightening unit

## PROTECTION COVER

to reduce noise level in the environment (Optional: sometimes it isn't supplied. For example, when DC nutrunner motors are being used)

## MANUAL MULTISPINDLE TIGHTENING UNIT

for vertical tightening

## LIGHT DEVICES

to control/monitor working cycle (optional)

## OIL SEPARATOR FILTERS/ AIR EXHAUST CONVEYOR

to convey and filter the air exhaust away from the operator to guarantee healthier working environment

## AIR OR ELECTRIC NUTRUNNER MOTORS

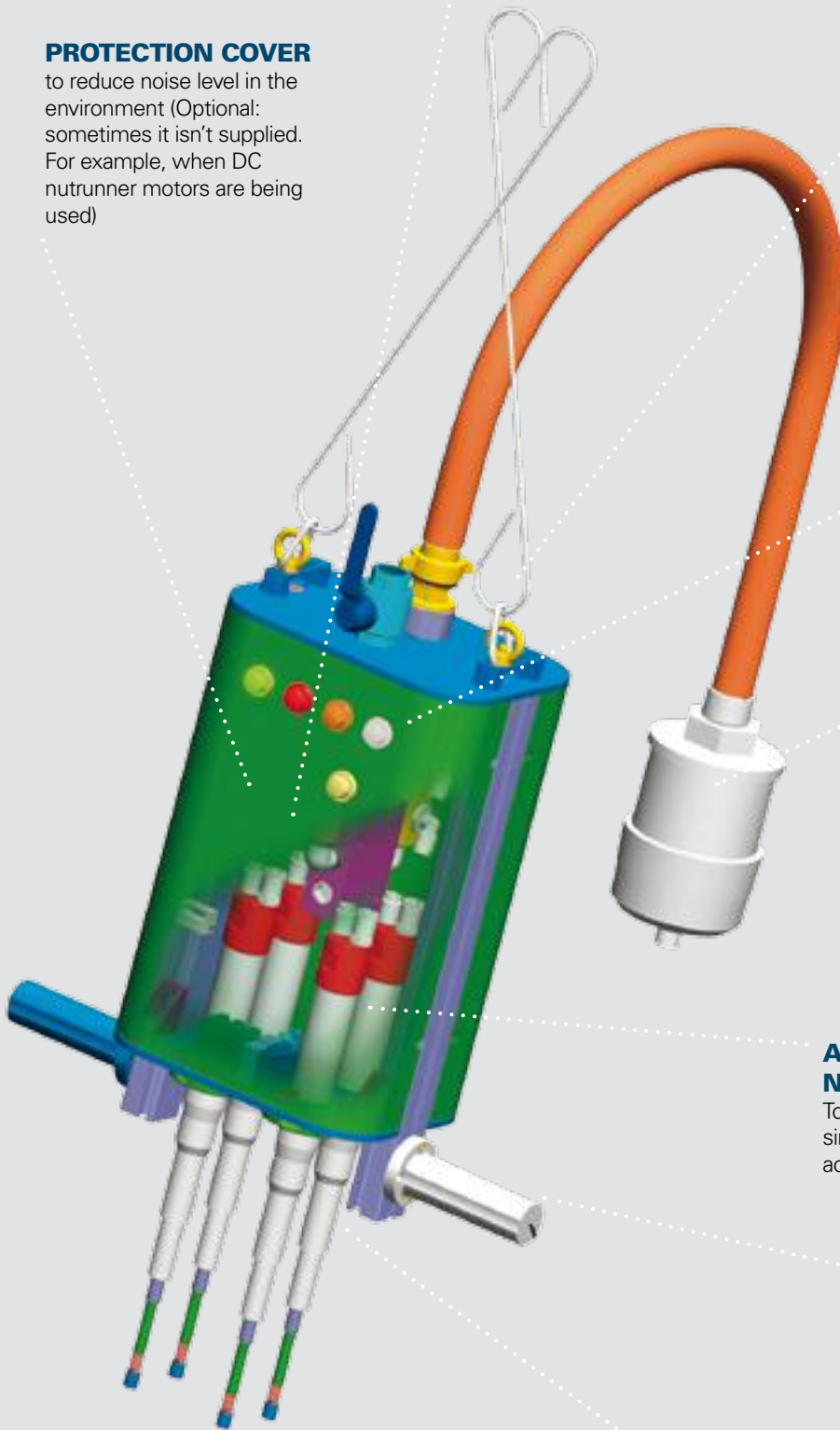
To tighten more screws simultaneously, in depth and accurately

## DOUBLE HANDLE

one of which is equipped with practical start button

## AXIAL COMPENSATORS

to compensate height difference among screws and tighten **on different heights**





**Be demanding**

## Reliability

The air nutrunner motors are completely **designed and manufactured by Fiam. They guarantee the correct immediate functioning also at low air feed pressure.** They are manufactured with materials that guarantee durability and reliability for hundreds of thousands of cycles

**High technology electric solutions** with **DC nutrunner motors** are available: to monitor and control the assembly cycles and to assure high quality assembly operations

All solutions are designed and manufactured according to customer's requirements and are **carefully tested** to guarantee correct functioning

Besides eliminating the height difference of the screws on the component, the **axial compensation**, eases the approach of the spindles on the screw, reduces the axial thrust on the mechanical part of the motor preserving components from wear and tear



*Semi-automatic multispindle tightening unit*

**The changement of the distance to centre can take place manually, pneumatically or electronically**

All solutions can be equipped with **light devices for monitoring or controlling** the working cycle



*Multispindle tightening unit on turntable*

**Don't be satisfied with the maximum**

## Productivity

Strong reduction of the cycle times thanks to the possibility to **tighten simultaneously and accurately more screws, bolts, nuts**

Possibility to **customize the motors** according to the type of joint and application

The solutions can be designed **with or without protection cover, to be positioned on existing production lines**

**Compact and easy to handle**, they are user-friendly for the operator

Semi-automatic and automatic solutions with **automatic screw feeding** to optimize cycle times are available



**Perfection  
is in your hands**

## Ergonomics

The solutions are designed considering productive layout and workplaces with the aim to **eliminate every risk factor for the operator**

**Effective suspension systems** are studied and used for every solution; they completely annulate the unit's weight for perfect operator handling

The multispindle tightening unit can work both **in vertical and horizontal axis**, depending on the workpiece to be assembled. Also it can turn around its axis to optimally position itself in respect to the workpiece to be assembled



All pneumatic solutions can use motors equipped with **effective silencing systems**



Example of multispindle tightening unit, manufactured for **appliance components**, equipped with **computerized controlled electric nutrunner motors**

**Naturally innovative**

## Ecology



The advanced technological design of the Fiam nutrunner motors permits very **high decrease of compressed air consumption**, without affecting solution performance

All the components are **easy to dispose of** because they are built using recyclable materials

All pneumatic solutions are equipped with oil separator filters for conveying the exhaust air, guaranteeing **absence of oil mist into the environment**

For electrical multispindle tightening units, **eco-contribution WEEE** is acquitted: Fiam fulfils its manufacturer obligations with respect for the environment and without any costs for the customer



- 1** Feed and computerized control unit
- 2** Workpiece to be assembled
- 3** Multispindle unit with electric nutrunner motors with computerized control
- 4** Grip: the multispindle unit is positioned on the running slide (**5**) which comfortably and easily guides the multispindle tightening unit on the workpiece to be tightened
- 6** Control panel for the selection of the tightening programmes and for visualization of the assembly results

# Fiam nutrunner motors: tightening corner

Accurate, reliable, compact, they are designed and manufactured by Fiam specifically for industrial automation and they are **used in manual or fixtured tightening units**.

## NUTRUNNER MOTORS WITH AIR SHUT-OFF

Thanks to the automatic and immediate air shut-off device, these motors guarantee high torque repeatability.

To be used **with components manufactured with high quality materials** (for example in assembly of car components).

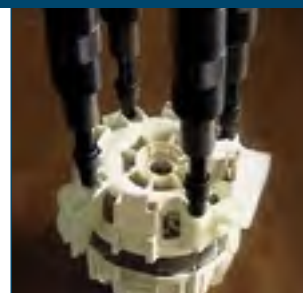
**Range: 0,4 ÷ 40 Nm**  
**Speed: 450 ÷ 2700 Rpm**



## NUTRUNNER MOTORS WITH SLIP CLUTCH

The use of these motors is extremely versatile because their torque control device with slip clutch is **suitable for different types of materials**.

**Range: 0,6 ÷ 22 Nm**  
**Speed: 450 ÷ 2800 Rpm**



## AIR NUTRUNNER MOTORS WITHOUT CLUTCH

These motors with **direct and continuous drive** of the torque guarantee tightening evenness also in presence of extremely soft joints (for example in assembly of steel components with interposed rubber seals of significant thickness).

**Range: 2,5 ÷ 90 Nm**  
**Speed: 320 ÷ 2800 Rpm**



## BRUSHLESS ELECTRIC NUTRUNNER MOTORS WITH COMPUTERIZED CONTROL

They are fundamental when it is necessary to control, monitor and **check the whole tightening process** (to memorize the tightening datas). They can be **used on different type of joints** (same model for different torques).

**Range: 0,5 ÷ 500 Nm**  
**Speed: 100 ÷ 1700 Rpm**

### CURRENT control

The torque parameters are achieved by measuring the current absorbed by the brushless motor; the angle parameters are achieved by appropriate sensors

### TORQUE AND ANGLE control

The torque is read by the built-in electronic transducer and the angle is read directly by appropriate sensors



# rectly responding to every need

Extremely robust, they guarantee constant performances in the long run also when used in heavy duty conditions. Several configurations with different modes of torque control and monitoring to solve any tightening need, even most difficult ones.



MORE INFO: CAT. 90



MORE INFO: CAT. 90



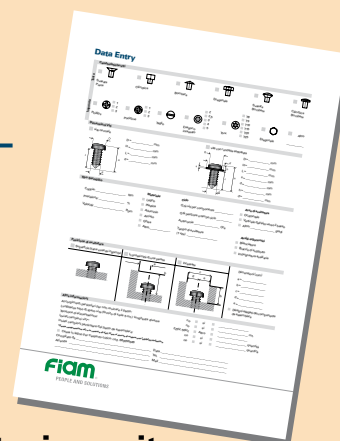
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MORE INFO: CAT. 71

## DOWNLOAD THE ENTRY DATA AND REQUEST MORE INFORMATION!

By sending us the features of the screw on the component to be assembled, you will receive a quick and no obligation, "turnkey" solution that will save you time and money!



[www.fiamgroup.com](http://www.fiamgroup.com)

→ Section: Automatic solutions > Multi-spindle tightening units

## DISCOVER HOW IT WORKS!



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